

**AGREEMENT FOR MAINTENANCE OF  
STORM WATER DETENTION SYSTEM**

This agreement is made on June 10, 2013, by CONTINUUM CARE CAMPUS ASSOCIATION, a Michigan non-profit corporation (hereafter, the "Association"), whose address is 25480 Telegraph Road, Suite 100, Southfield, Michigan 48033, and the CITY OF ROCHESTER HILLS (the "City"), whose address is 1000 Rochester Hills Drive, Rochester Hills, MI 48309.

RECITALS:

WHEREAS, the Association is responsible for the operation, administration, maintenance, upkeep, repair and replacement of Continuum Care Campus, a Condominium project established in conformance with the Michigan Condominium Act (the "Condominium"), consisting of three (3) units and described in the attached Exhibit "A" (the "Property"); and

WHEREAS, the Association, as agent of the Condominium and as representative of the Co-owners of the Condominium has approved and the City has approved, a storm water drainage and detention system (the "System"), which includes a detention pond, for the Property as identified and depicted in the Storm Water System Plan attached as Exhibit "B"; and

WHEREAS, the parties will benefit from the proper use and maintenance of the System and desire to enter into this agreement to provide for the same.

THEREFORE, the parties agree:

1. **Use of the System:** Components of the System, including the detention pond, shall be used solely for the purpose of detaining storm and surface water on the property until such time as: (i) the City may determine and advise the Association, or its successors, grantees or assigns, in writing that it is no longer necessary to use the detention basin to detain storm or surface water; and (ii) an adequate alternative for draining storm and surface water has been provided which is acceptable to the City and which includes the granting of such easements to the City or third parties for the alternative drainage system as may be necessary.

2. **Maintenance:**

A. The Association shall be responsible for the proper maintenance, repair and replacement of the System and any part thereof, including the detention pond as detailed in the Operations and Maintenance Manual attached as Exhibit "C".

John Staran  
Appd. 8/26/13

B. Proper maintenance of the System shall include, but not be limited to: (i) Keeping the bottom of the detention pond free from silt and debris; (ii) Removing harmful algae; (iii) Maintaining steel grating across the pond's inlets; (iv) Controlling the effects of erosion; and (v) Any other maintenance that is reasonable and necessary in order to facilitate or accomplish the intended function and purpose of the System.

3. **Action by City:** In the event the Association or the Association's successors, grantees or assigns, neglect or fail at any time to properly maintain the System or any part thereof, the City may notify the Association, or the Association's successors, grantees or assigns. The notice shall be in writing and shall include a list and description of maintenance deficiencies and a demand that they must be corrected within thirty (30) days. The notice shall further specify the date and place for a hearing to be held at least fourteen (14) days after the date of the notice before the City Council, or such other board or official to whom the City Council may designate. At the hearing, the City Council (or other designated board or official) may affirm or modify the list and description of maintenance deficiencies to be corrected and, for good cause shown, may extend the time within which the deficiencies must be corrected.

Thereafter, if the maintenance deficiencies are not corrected within the time allowed, the City may undertake and make the necessary corrections, and the City may maintain the System for a period not to exceed one (1) year. Such maintenance of the System by the City shall not be deemed a taking of the property, nor shall the City's actions be deemed to vest in the public any right to use the property. Thereafter, if the Association or the Association's successors, grantees or assigns do not properly maintain the System, the City may, after providing similar written notice, schedule and hold another hearing to determine whether the City should maintain the System for another year, and subject to similar notice, hearing and determination, in subsequent years.

In the even the City determines an emergency condition caused by or relating to the System threatens the public health, safety or general welfare, the City shall have the right to immediately and without notice enter the property and undertake appropriate corrective action.

4. **Charges:** The City shall charge to the Association the cost of maintenance or other corrective action undertaken by the City in accordance with this agreement, plus a ten percent (10%) administrative fee. If not timely paid, the City may assess the charges on the City's tax roll, which charges shall be a lien on the real property and shall be collectable and enforceable in the same manner general property taxes are collected and enforced.

5. **Notice:** Any notices required under this agreement shall be sent by certified mail to the address for each party set forth below, or to such other addresses as such party may notify the other parties in writing:

To the Association: Continuum Care Campus Association  
c/o Armen Kalaydjian  
25480 Telegraph Road, Suite 100  
Southfield, Michigan 48033

To the City: Clerk  
City of Rochester Hills  
1000 Rochester Hills Drive  
Rochester Hills, Michigan 48309

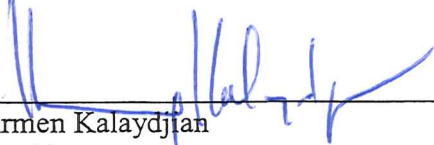
6. **Successors and Assigns:** This agreement shall bind and inure to the benefit of the parties and their respective successors, grantees and assigns. The rights, obligations and responsibilities hereunder shall run with the land and shall bind all current and future owners of the property.

7. **Recording of Agreement:** This agreement shall be recorded at the Oakland County Register of Deeds.

[SIGNATURES ON FOLLOWING PAGE]

[Signatures to Agreement for Maintenance of Storm Water Detention System]

CONTINUUM CARE CAMPUS ASSOCIATION,  
a Michigan non-profit corporation

By:   
Armen Kalaydjian  
Title: President

CITY OF ROCHESTER HILLS

By: \_\_\_\_\_  
Bryan K. Barnett, Mayor

By: \_\_\_\_\_  
Tina Barton, City Clerk

STATE OF MICHIGAN  
COUNTY OF OAKLAND

This agreement was acknowledged before me on June 10, 2013, by Armen Kalaydjian, who is the President of Continuum Care Campus Association, a Michigan non-profit corporation, on behalf of the corporation.

Monica Schaffer  
\_\_\_\_\_, notary public  
Wayne, County, Michigan  
Acting in the County of Oakland  
My commission expires: 1-5-15

MONICA SCHAFFER  
Notary Public, State of Michigan  
County of Wayne  
My Commission Expires Jan. 05, 2015  
Acting in the County of Oakland

STATE OF MICHIGAN  
COUNTY OF OAKLAND

This agreement was acknowledged before me on \_\_\_\_\_, 2013, by Bryan K. Barnett, Mayor, and *Tina Bartay* Clerk, of the City of Rochester Hills, on behalf of the City.

\_\_\_\_\_, notary public  
\_\_\_\_\_, County, Michigan  
Acting in the County of \_\_\_\_\_  
My commission expires: \_\_\_\_\_

Drafted By:  
Sheryl K. Silberstein, Esq.  
Maddin, Hauser, Wartell, Roth & Heller, PC  
28400 Northwestern Highway  
Third Floor – Essex Centre  
Southfield, Michigan 48034

When Recorded Return to:  
Clerks Department  
City of Rochester Hills  
1000 Rochester Hills Drive  
Rochester Hills, Michigan 48309

**EXHIBIT "A"**

**PEACHWOOD PARCEL**

**Unit 1**, Continuum Care Campus, a condominium according to the Master Deed thereof as recorded in Liber 42345, page 179, Oakland County Records, and designated as Oakland County Condominium Subdivision Plan No. 2004 and any amendments thereto, together with an undivided interest in the common elements of said condominium as set forth in said Master Deed, and any amendments thereto, as described in Act 59 of the Public Acts of Michigan of 1978, as amended

Tax Parcel No. 15-31-378-001

**POMKAL ASSISTED PARCEL**

**Unit 2**, Continuum Care Campus, a condominium according to the Master Deed thereof as recorded in Liber 42345, page 179, Oakland County Records, and designated as Oakland County Condominium Subdivision Plan No. 2004 and any amendments thereto, together with an undivided interest in the common elements of said condominium as set forth in said Master Deed, and any amendments thereto, as described in Act 59 of the Public Acts of Michigan of 1978, as amended

Tax Parcel No. 15-31-378-002

**POMKAL PARCEL**

**Unit 3**, Continuum Care Campus, a condominium according to the Master Deed thereof as recorded in Liber 42345, page 179, Oakland County Records, and designated as Oakland County Condominium Subdivision Plan No. 2004 and any amendments thereto, together with an undivided interest in the common elements of said condominium as set forth in said Master Deed, and any amendments thereto, as described in Act 59 of the Public Acts of Michigan of 1978, as amended

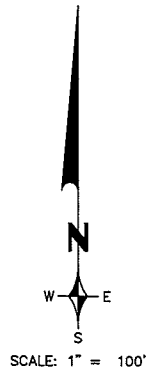
Tax Parcel No. 15-31-378-003

*OK Per Mike  
TAVNT 8/12/13*

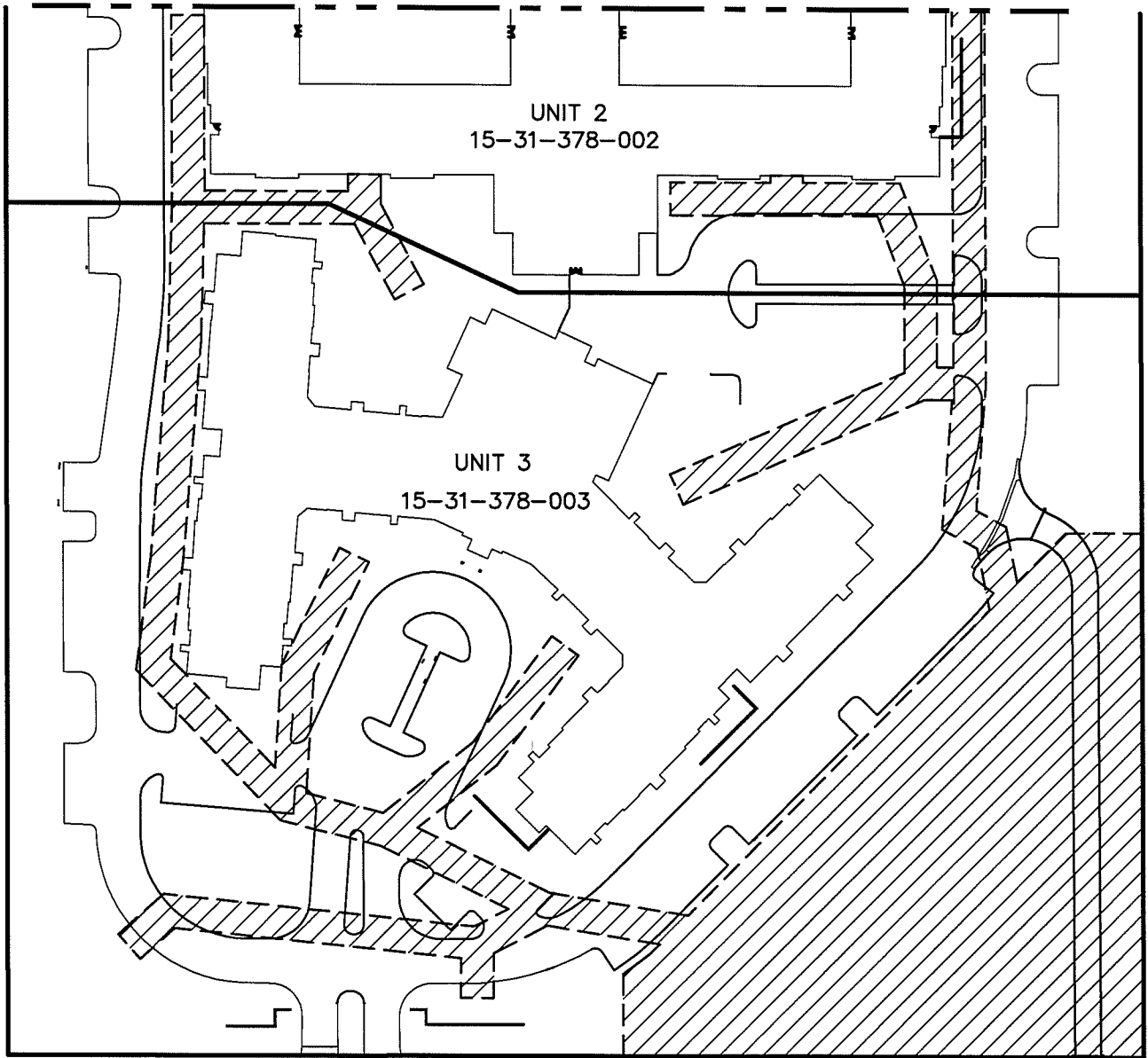
EXHIBIT 'B'

LEGEND:

 LIMITS OF STORM WATER MANAGEMENT SYSTEM



MATCH LINE SEE SHEET 2/2



⊥ SOUTH BOULEVARD (60' WD., 1/2 WIDTH)

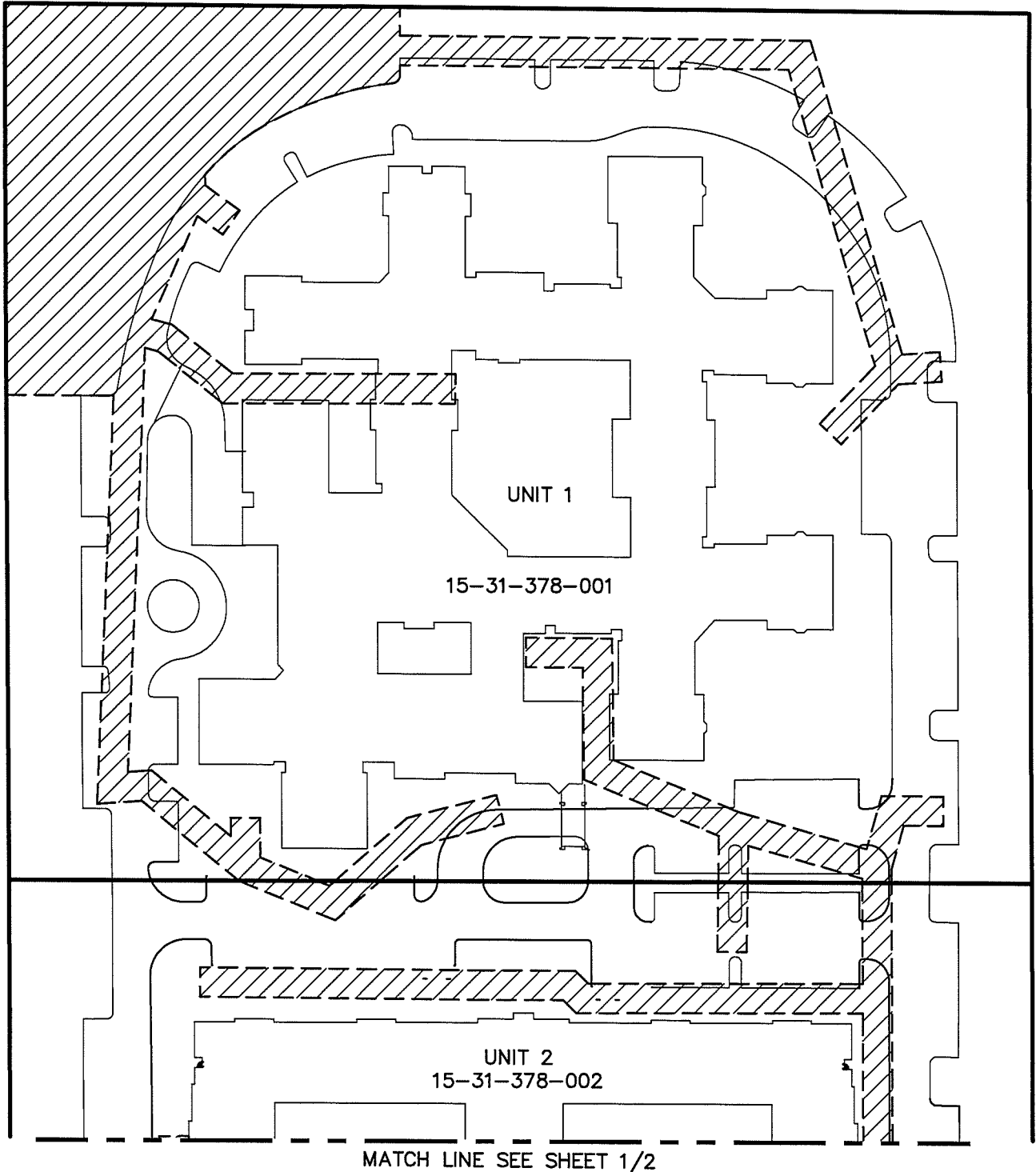
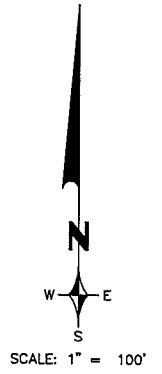
*OK per Mike Tawnt 8/26/13*

REVISIONS			STORM WATER DRAINAGE SYSTEM PLAN		DATE	SCALE	
ITEM	DATE	BY			8-19-13	HOR: 1" = 100'	FIELD BOOK NO.
			<p><b>Z E I M E T   W O Z N I A K</b>                      &amp; ASSOCIATES                      Civil Engineers &amp; Land Surveyors                      55800 GRAND RIVER AVE, SUITE 100                      NEW HUDSON, MICHIGAN 48165                      P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com</p>		DESIGNED BY	JOB NO.	© COPYRIGHT 2012
					JJW	<b>06158</b>	
					DRAWN BY	SHEET NO.	
					DAB	<b>1/2</b>	

EXHIBIT 'B'

LEGEND:

 LIMITS OF STORM WATER MANAGEMENT SYSTEM



REVISIONS		
ITEM	DATE	BY

**STORM WATER DRAINAGE  
SYSTEM PLAN**

**Z E I M E T   W O Z N I A K**  
& ASSOCIATES  
Civil Engineers & Land Surveyors  
55800 GRAND RIVER AVE, SUITE 100  
NEW HUDSON, MICHIGAN 48165  
P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com

DATE 8-19-13	SCALE HOR: 1" = 100' FIELD BOOK NO.
DESIGNED BY JJW	JOB NO. <b>06158</b>
DRAWN BY DAB	SHEET NO. <b>2/2</b>

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**EXHIBIT "C"**

**OPERATIONS AND MAINTENANCE MANUAL**

**CONTINUUM CARE CAMPUS  
STORMWATER MAINTENANCE PLAN  
ROCHESTER HILLS, MI**

**CONTINUUM CARE CAMPUS ASSOCIATION  
25480 TELEGRAPH ROAD, SUITE 100  
SOUTHFIELD, MICHIGAN 48034  
PHONE: (248) 356-4060  
ATTN: ARMEN KALAYDJIAN**

PREPARED BY:  
Zeimet Wozniak and Associates, Inc.  
55800 Grand River, Suite 100  
New Hudson, MI 48165-9318  
Phone: (248) 437-5099  
Attn: Julian J. Wargo, Jr., PE

## **OPERATIONS AND MAINTENANCE MANUAL**

### **INTRODUCTION:**

This manual identifies the ownership, operation and maintenance responsibilities for all of the stormwater management systems including the detention pond, underground storm sewer system, mechanical pre-treatment devices, and outlet control structure as incorporated into and detailed on the approved construction documents as prepared by Zeimet Wozniak and Associates, Inc. In order to comply with the City of Rochester Hills best management practices (BMP) and requirements, this manual should serve only as a minimum performance standard. This manual should remain intact and read in its entirety by all parties responsible for the operation and maintenance of the on-site BMP's.

### **OWNER:**

Mr. Armen Kalaydjian  
Pomkal Rochester, LLC  
25480 Telegraph Road, Suite 100  
Southfield, MI 48034  
Phone:

### **PROPERTY INFORMATION:**

This Operations and Maintenance Manual is for the stormwater systems (BMP's) located within the following described subject property:

LEGAL DESCRIPTION: See attached Exhibit 'A'

### **STORMWATER MAINTENANCE EXHIBIT:**

Exhibit 'B' of the Stormwater Maintenance Agreement is the Storm Water System Plan which provides a clear representation of all components of the stormwater system. This system is subject to the long-term operation and maintenance responsibilities as detailed in this manual. The system includes the following:

- Storm Sewer Pipes
- Storm Sewer Structures (manholes, inlets and catch basins)
- Infiltration Drains
- Mechanical Treatment Devices (Vortechs)
- Detention Basin
- Outlet Control-Structure

### **INSPECTIONS:**

The frequency of stormwater system component inspections as outlined in this manual and the attached Exhibit 'C' of the Stormwater Maintenance Agreement shall be considered the minimum, if no events warrant additional inspections. The frequency of the inspections shall be adjusted over time as the system specific conditions become better known and the rate in which certain maintenance operations need to be performed and are better understood. Maintenance inspections checklists are provided for each BMP of this system. The inspections shall be performed by personnel responsible for the maintenance and may need to be certified for confined space entry, depending on the component being inspected. The underground detention system, outlet control structure and pre-treatment device may need to be inspected by a practicing civil engineer familiar with the operation of these components.

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Records of all routine inspections and any maintenance performed on the system, including repairs and replacement, shall be maintained by the owner and kept for a minimum of ten (10) years. A copy of all records shall be provided to the City of Rochester Hills Engineering Department. The records shall include this manual, all inspection sheets, approved construction plans and as-built documents, the maintenance log of work performed on the system(s) and contact information of the system inspector, civil engineer, landscape architect, geotechnical engineer and contractor involved with the system.

#### **STORMWATER SYSTEMS MAINTENANCE OVERVIEW:**

If the system is to perform up to expectations, regular inspection and maintenance is required. Stormwater systems are expected to perform quality and quantity control functions as long as the land use they serve exists. Failure to maintain these systems create adverse impacts such as the following:

- Increase in pollutants to the surrounding surface water features
- Potential loss of property or life resulting from catastrophic failure of the facility
- Aesthetic or nuisance conditions, such as mosquitoes or reduction of property values due to a degraded facility appearance.

Many of these impacts can be avoided or eliminated through proper and timely inspection and maintenance of the system. These impacts can cause a major concern with the general public's expectations related to the quality of life by construction of these systems. The general public may have a false sense on security should inadequate maintenance of the system occur. The most common cause of stormwater system failure is lack of adequate and proper operation, inspection, maintenance and management of the system.

Proper design and construction of the system can reduce subsequent maintenance needs and costs, but does not eliminate the need for maintenance altogether. Maintenance requires a long term commitment of time, money, personnel and equipment to monitor the overall performance of the stormwater management system and is a major aspect of the maintenance program.

The maintenance responsibilities for these systems shall lie with the current owner of the property and transfer with the property in perpetuity. If maintenance of the system is not performed, the City of Rochester Hills reserves the right to enter the property and perform all required work at the owner's cost. Refer to the Agreement for Stormwater System Maintenance for additional details.

#### **GENERAL MAINTENANCE ITEMS:**

##### Parking Lot Sweeping:

Routine sweeping of all paved surfaces provides an attractive appearance and removes accumulated sediment and trash that tend to migrate into the stormwater management systems during rain events. Parking lot sweeping should be performed at a minimum quarterly or as necessary to limit build-up of sediment and trash.

##### Grass Mowing and Maintenance:

Mowing requirements shall be designed to the specific site conditions, grass types and climatic changes due to seasons. Grass areas require periodic fertilizing, de-thatching and soil conditioning in order to maintain healthy growth and desirable appearance. A provision to reseed and re-establish grass cover for areas damaged by sediment accumulation, stormwater flow, erosion or other causes shall be made by the owner. Dead turf shall be replaced after being discovered. The inspection of grass areas and landscaping features shall be made annually.

Trash and Debris Removal:

Removal of trash and debris from all areas of the property shall be performed weekly. Removal of these items prevents damage to the vegetated areas, provides an aesthetically pleasing appearance and eliminates their potential to enter into the stormwater management systems. Sediment, debris and trash collected shall be disposed of according to local, State, and Federal regulations at a suitable disposal and/or recycling center.

**STORMWATER SYSTEM MAINTENANCE ITEMS:**

The following descriptions provide an overview of the maintenance requirements of the different components of the stormwater system. The attached inspection lists offer a more complete listing of the inspection and maintenance activities required by each component.

Storm Sewer Pipes and Structures:

Catch basins and storm sewer pipes shall be inspected for sediment accumulation and clogging, floating debris, dead vegetation, etc. The structures and sewers shall also be observed during a rain event to ensure they are properly functioning. Accumulated sediment and debris shall be removed on an annual basis or as required per observed conditions. Structural repairs or maintenance for such conditions as cracks, spalling, joint failure, leakage, misalignment, or structure settlement shall be made on an annual basis or as required per observation. A licensed civil engineer shall be retained if problems are thought to exist.

Infiltration Drains:

Catch basins and storm sewer pipes shall be inspected for sediment accumulation and clogging, floating debris, dead vegetation, etc. The structures and sewers shall also be observed during a rain event to ensure they are properly functioning. Accumulated sediment and debris shall be removed on an annual basis or as required per observed conditions. The overlying vegetation should be maintained in good condition and any bare spots revegetated as soon as practical. Vehicular access on the infiltration drains should be prohibited and care should be taken to avoid excessive compaction by mowers.

Mechanical Treatment Device (Vortechs):

The maintenance manual from the manufacturer for all inspections and maintenance requirements for the specified Vortechs units is attached to this manual.

Detention Pond:

The inlet pipes to the pond should be inspected for structural integrity (pipes cracks, broken, spalled) and that the grates are free from debris. The area around and immediately downstream of the inlet pipes should be inspected for sediment build-up and erosion. The rip-rap should be inspected for integrity and sedimentation. Maintenance of the inlet pipes would include removal of any sediment build-up and debris, repair or replacement of any component in need of attention, and restoring any areas that have eroded.

The pond should be inspected for healthy grass growth, side slope erosion, and excessive sedimentation. The pond should be inspected during a wet weather event to ensure that all aspects of the pond are functioning properly. A civil engineer should be retained if problems are thought to exist or if the inspection personnel are not familiar with the operation of the pond.

The planted vegetation should conform to the approved planting schemes and any invasive plants should be removed immediately. The vegetation should be inspected by a landscape architect if the inspection personnel are not familiar with the specific plantings in the pond.

Any complaints from the residents or adjoining homeowners regarding the operation or aesthetics of the pond should be investigated during inspections and during wet weather operations.

Outlet Control Structure:

The outlet control structure shall be inspected for sediment accumulation, floating debris, trash or any other foreign object that may impede the flow or restrict discharge from the structure. The outlet control structure shall be inspected during a rain event to ensure all components are properly functioning. A licensed civil engineer shall be retained if problems are thought to exist.

Maintenance should include removal of any debris, trash or sediment from the structure.

The following pages include the reference exhibits, inspection checklists for the various components previously described, and the Vortechs' manufacturers' maintenance manual.

**OAKMONT SENIOR CARE, ROCHESTER HILLS**

**INSPECTION CHECKLIST**

Maintenance Activities	System Component				Frequency
	Storm Sewer Pipes and Structures	Mechanical Treatment Devices	Detention Pond	Flow Restrictors, Overflow Structure & Outlet Pipes	
<b>Monitoring/Inspection</b>					
• Inspect for sediment accumulation*	X	X	X	X	Annually
• Inspect for floatables, dead vegetation and debris	X	X	X	X	Annually and after major events
• Inspect all components during wet weather and compare to as-built plans	X	X	X	X	Annually
• Ensure means of access for maintenance remain clear/open	X	X	X	X	Annually
<b>Preventative Maintenance</b>					
• Remove accumulated sediment	X	X	X	X	As needed *
• Remove floatables, dead vegetation and debris	X	X	X	X	As needed
<b>Remedial Actions</b>					
• Structural repairs	X	X	X	X	As needed
• Make adjustments/repairs to ensure proper functioning	X	X	X	X	As needed

\* Mechanical Treatment Devices to be cleaned whenever sediment accumulates to a depth of less than 4' from the water surface in the structure or sediment resuspension is observed.

\* Detention pond is to be cleaned whenever sediment accumulates to a depth of 2 inches or more.

**SUMMARY**

Date: \_\_\_\_\_

Weather: \_\_\_\_\_

Inspector: \_\_\_\_\_

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Condition of System and Components: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Remedial Actions Required: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Date Remedial Actions Completed: \_\_\_\_\_

By: \_\_\_\_\_

## Vortechs® Maintenance

The Vortechs system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit, e.g., unstable soils or heavy winter sanding will cause the swirl chamber to fill more quickly but regular sweeping will slow accumulation.

### Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant deposition and transport may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. Inspections should be performed twice per year (i.e. spring and fall) however more frequent inspections may be necessary in equipment washdown areas and in climates where winter sanding operations may lead to rapid accumulations. It is useful and often required as part of a permit to keep a record of each inspection. A simple inspection and maintenance log form for doing so is provided on the following page, and is also available on [contechstormwater.com](http://contechstormwater.com).

The Vortechs system should be cleaned when inspection reveals that the sediment depth has accumulated to within 12 to 18 inches (300 to 450 mm) of the dry-weather water surface elevation. This determination can be made by taking two measurements with a stadia rod or similar measuring device; one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. **Note:** To avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile. Finer, silty particles at the top of the pile typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile.

### Cleaning

Cleaning of the Vortechs system should be done during dry weather conditions when no flow is entering the system. Clean-out of the Vortechs system with a vacuum truck is generally the most effective and convenient method of excavating pollutants from the system. If such a truck is not available, a "clamshell" grab may be used, but it is difficult to remove all accumulated pollutants using a "clamshell".

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, an oil or gasoline spill should be cleaned out immediately. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use adsorbent pads to solidify the oil since these pads are usually much easier to remove from the unit individually and less expensive to dispose of than the oil/water emulsion that may be created by vacuuming the oily layer. Floating trash can be netted out if you wish to separate it from the other pollutants.

Cleaning of a Vortechs system is typically done by inserting a vacuum hose into the swirl chamber and evacuating this chamber of water and pollutants. As water is evacuated, the water level outside of the swirl chamber will drop to a level roughly equal to the crest of the lower aperture of the swirl chamber. The water outside the swirl chamber should remain

near this level throughout pumping as the bottom and sides of the swirl chamber are sealed to the tank floor and walls. This "water lock" feature prevents water from migrating into the swirl chamber, exposing the bottom of the baffle wall and creating excess pump-out volume. Floating pollutants will decant into the swirl chamber as the water level is drawn down. This allows most floating material to be withdrawn from the same access point above the swirl chamber. Floating material that does not decant into the swirl chamber during draw down should be skimmed from the baffle chamber. If maintenance is not performed as recommended, sediment may accumulate outside the swirl chamber. If this is the case, it may be necessary to pump out other chambers. It is advisable to check for sediment accumulation in all chambers during inspection and maintenance.

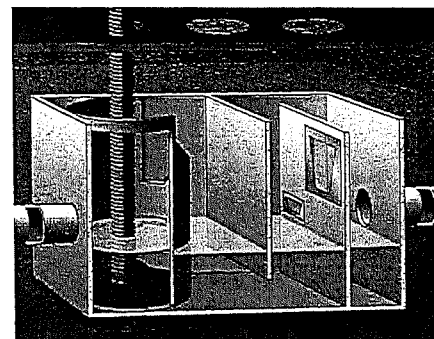
These maintenance recommendations apply to all Vortechs systems with the following exceptions:

1. It is strongly recommended that when cleaning systems larger than the Model 16000 the baffle chamber be drawn down to depth of three feet prior to beginning clean-out of the swirl chamber. Drawing down this chamber prior to the swirl chamber reduces adverse structural forces pushing upstream on the swirl chamber once that chamber is empty.
2. Entry into a Vortechs system is generally not required as cleaning can be done from the ground surface. However, if manned entry into a system is required the entire system should be evacuated of water prior to entry regardless of the system size.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure proper safety precautions. If anyone physically enters the unit, Confined Space Entry procedures need to be followed.

Disposal of all material removed from the Vortechs system should be done in accordance with local regulations. In many locations, disposal of evacuated sediments may be handled in the same manner as disposal of sediments removed from catch basins or deep sump manholes. Check your local regulations for specific requirements on disposal.

For assistance with maintaining your Vortechs system, contact us regarding the CONTECH Maintenance Compliance Certification Program.



## Vortechs Inspection & Maintenance Log

Vortech Model: \_\_\_\_\_ Location: \_\_\_\_\_

Date	Water depth to sediment <sup>1</sup>	Floatable Layer Thickness <sup>2</sup>	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than eighteen inches the system should be cleaned out. Note: To avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.
2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.



## SECTION 5.0 OPERATION AND MAINTENANCE RESPONSIBILITIES

### Subsection 5.1 General Responsibilities

- A. The Owner/Developer of a property is responsible for the proper installation and initial function of the stormwater management system in accordance with the approved Stormwater Management Plan. All temporary soil erosion and sedimentation control measures shall be removed or converted to their permanent configuration in accordance with an approved erosion control plan. It is required that the Oakland County Drain Commissioner (OCD) determine and approve when sufficient stabilization has occurred on a site in order to convert to the permanent stormwater management facilities.
- B. The Owner/Developer is responsible for the proper operation and maintenance of the stormwater management system during and after construction. An Operation and Maintenance Plan consistent with the requirements of Section 5.3 shall be prepared for review and approval by the engineering division. The operation and maintenance plan will become an exhibit to the operation and maintenance agreement. See Section 5.3 and 5.4 for further detail.
- C. Approval and Transfer of Stormwater Operation and Maintenance (O&M) Responsibilities.
  1. The City of Rochester Hills requires that the stormwater management system is operated and maintained by the individual property owners or an owners/homeowners association or similar entity, or an organization capable of carrying out maintenance responsibilities. However, the Developer is responsible for O & M until:
    - a. Evidence of final approval by OCD is received indicating the site has been sufficiently stabilized to convert to the permanent stormwater management system.
    - b. The stormwater management system is cleaned and free of sediment, as well as defects and/or damage corrected.
    - c. Evidence that the stormwater management system has been transferred to an association or relevant owner, as well as approval of the transfer by the City of Rochester Hills.

### Subsection 5.2 Ownership and Maintenance

All stormwater management systems identified within an approved Stormwater Management Plan shall be owned and maintained by one of the following entities:

- A. Individual On Property Stormwater Management Systems
  1. Where individual on-property stormwater management systems are proposed, the land development plan shall contain a note designating the entity responsible for operation and maintenance of the on-property system consistent with an approved Operation and Maintenance Plan.

**B. Owners, Homeowners or Condominium Association Ownership**

Where an association is created to own and manage the stormwater management system, the subdivision and/or land development plan shall contain a note designating the entity responsible for construction and/or maintenance of the stormwater management system consistent with an approved Operation and Maintenance Plan.

**Subsection 5.3 Operation and Maintenance Plan**

An Operation and Maintenance Plan shall be prepared to identify the ownership, operation and maintenance responsibilities and as-built conditions for all stormwater management systems. At a minimum, the operation and maintenance plan shall include the following:

- A. Any obligations concerning perpetuation and/or maintenance of natural drainage or infiltration facilities, and other facilities identified within the Stormwater Management Plan. Ownership of and responsibility for operation and maintenance of stormwater management systems, including names and contact information, shall be required.
- B. A description of the permanent stormwater management practices on the site, explaining how each practice is intended to function and operate over time. All drainage and access easements shall be depicted and any site restrictions to be recorded against the property shall be identified on the plan. All such easements and restrictions shall be perfected to run with the land and be binding upon the landowner and any successors in interest.
- C. A description of the actions, budget and schedule for operating and maintaining the stormwater management system. This description should be written in a clear manner, consistent with the knowledge and understanding of the intended user.
- D. A general description of operation and maintenance activities and responsibilities for systems held in common or on-property, including but not limited to: lawn care, vegetation maintenance, clean out of accumulated debris and sediment (including from grates, trash racks, inlets, etc.), liability insurance, maintenance and repair of stormwater management systems, landscaping and planting, payment of taxes and construction of any kind associated with the use, benefit and enjoyment of the facilities by the owners. In particular, a description of routine facility operation and day-to-day management requirements (as needed) and a description of routine maintenance actions and schedules necessary to ensure proper operation of stormwater management systems shall be submitted.
- E. Assurances that no action will be taken by any property owner to disrupt or in any way impair the effectiveness of any stormwater management system, setting forth in deed restrictions the ability of the City of Rochester Hills to take corrective measures if it is determined, at any time, that stipulated permanent stormwater management systems have been eliminated, altered, or improperly maintained.
- F. Parties responsible for the long term operation and maintenance of stormwater management systems shall make records of the installation and of all maintenance and repairs, and shall retain the records for at least ten (10) years. These records shall be submitted to the City of Rochester Hills as established by the Operation and Maintenance Plan or if otherwise required by the City of Rochester Hills.

#### **Subsection 5.4 Operation and Maintenance Agreement**

- A. The owner of any land upon which permanent stormwater management systems and/or BMPs will be placed, constructed or implemented, as described in an approved Stormwater Management Plan and the Operations and Maintenance Plan, shall provide the City of Rochester Hills a Stormwater System Operations and Maintenance Agreement that includes:
  - 1. The Operations and Maintenance Plan, or a summary thereof,
  - 2. Legal Description of the development property and,
  - 3. Map of the development with the Stormwater System depicting components and access and/or drainage Easements.
  - 4. In cases where the predevelopment offsite drainage is dependent on draining through the development, the agreement shall provide for that right of flow.
- B. The Operation and Maintenance Agreement shall be submitted to the City Engineering Division, executed and in recordable form, acceptable to the City for acceptance and recording.
- C. Other items or conditions may be included in the Operation and Maintenance Agreement where determined necessary to guarantee the satisfactory operation and maintenance of all permanent stormwater systems and BMPs. The agreement shall be subject to the review and approval of the City of Rochester Hills.